

REMARKS

Claims 1, 5-9, and 12-16 have been rejected under 35 U.S.C. 103(a) as unpatentable (i.e., obvious) over Blatt et al. ("Blatt") in view of Columbus. Blatt is cited for teaching an apparatus comprising a well (8) with a surface immobilized reagent (4), an entry port (7), a capillary passageway (10), and a vent (5). Columbus is cited for including microstructures for directing sample flow.

Blatt '381 contains certain features of the Applicants' invention, but it is not concerned with the problem addressed by the Applicants. Blatt defines a sample chamber which is shallow relative to its width so that capillary forces can propel the liquid sample across the chamber, where it comes in contact with reagents on surface 4 (Fig. 1). Blatt states that the minimum volume is about 20 μ L, although at column 4, lines 28-29, he says that the minimum is 5 to 10 μ L, but suggests the actual volume could be 100-200 μ L. Evidently, Blatt did not recognize the problems associated with providing uniform distribution of a sample liquid over a flat reagent, such as are described by the Applicants. Consequently, Blatt contains no suggestion that provision should be made to ensure uniform spread of the liquid sample or how it would be done. The Examiner concedes that the microstructures of the Applicants are not found in Blatt and adds Columbus to overcome the deficiency.

While Blatt's device is similar to the Applicants' in having a sample chamber containing reagents, Columbus's '029 is very different. Although the Examiner cites features that he relates to the Applicants' device, one skilled in the art would not recognize the Applicants' invention in Columbus's teachings. Liquid is distributed across the surface between opposing sets of grooves, but air is purged from all edges. Columbus does suggest at column 9, lines 50-68 carrying out reactions on the surfaces as an aside to his principal purpose. However, since air can be expelled from all sides rather than at an exit opposite the inlet, the problem of achieving uniform distribution of liquid and purging air is much less difficult. In any event, a combination of Columbus with Blatt has been obviated by the above amendments.

Claims 2-4, 10-12, and 27-32 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Blatt in view of Columbus and further in view of Peters. Peters is a co-inventor in the present application and his patent was cited in the specification. Since these claims depend

from independent claims, they should be patentable, if the Examiner agrees that Claims 1 and 9 are allowable in view of the amendments. Although Peters does show posts having wedge-shaped cutouts, his serve as channels to direct the flow of liquid. For example, in Peters' Fig. 7-8 an array of posts is used to remove liquid from a membrane, which flows via wedge-shaped cutouts to second chamber 27 and then into third chamber 29. The Applicants' posts may include wedge-shaped cutouts, but they are positioned at right angles to the direction in which liquid flows.

In view of the amendments and remarks, the claims are believed to be in condition for allowance. If the Examiner believes that additional amendments may be needed, he is invited to contact the Applicants' attorney at the telephone number provided below.

Respectfully submitted,



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